FIGURE 8.31 Modern tablet-coating facility. Air and exhaust ducts to assist drying are automatically operated from central board. (Courtesy of Eli Lilly and Company.)

access. During operation, the pan is mechanically rotated at moderate speeds, allowing the tablets to tumble over each other while making contact with the coating solutions, which are gently poured or sprayed onto the tablets. To allow gradual buildup of the coatings, the solutions are added in portions, with warm air blown in to hasten drying. Each coat is applied only after the previous coat has dried. Tablets intended to be coated are manufactured to be thin edged and highly convex to allow the coatings to form rounded rather than angular edges.

Waterproofing and Sealing Coats

For tablets containing components that may be adversely affected by moisture, one or more coats of a waterproofing substance, such as pharmaceutical shellac or a polymer, are applied to the compressed tablets before the subcoating application. The waterproofing solution (usually alcoholic) is gently poured or sprayed on the compressed tablets rotating in the coating pans. Warm air is blown into the pan during the coating to hasten the drying and to prevent tablets from sticking together.

Subcoating

After the tablets are waterproofed if needed, three to five subcoats of a sugar-based syrup

FIGURE 8.32 Gauge used to measure coated tablets. (Courtesy of Eli Lilly and Company.)

are applied. This bonds the sugar coating to the tablet and provides rounding. The sucrose and water syrup also contains gelatin, acacia, or PVP to enhance coating. When the tablets are partially dry, they are sprinkled with a dusting powder, usually a mixture of powdered sugar and starch but sometimes talc, acacia, or precipitated chalk as well. Warm air is applied to the rolling tablets, and when they are dry, the process is repeated until the tablets are of the desired shape and size (Fig. 8.32). The subcoated tablets are then scooped out of the coating pan, and the excess powder is removed by gently shaking the tablets on a cloth screen.

Smoothing and Final Rounding

After the tablets are subcoated, 5 to 10 additional coatings of a thick syrup are applied to complete the rounding and smooth the coatings. This syrup is sucrose based, with or without additional components such as starch and calcium carbonate. As the syrup is applied, the operator moves his or her hand through the rolling tablets to distribute the syrup and to prevent the tablets from sticking to one another. A dusting powder is often used between syrup applications. Warm air is applied to hasten the drying time of each coat.

Finishing and Coloring

To attain final smoothness and the appropriate color to the tablets, several coats of a